



Alban Giacomo spa

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TECHNICAL MANUAL

GALILEO CM

Manual Command Coplanar Sliding System

*For all types of profile with gap 4/11/12
and rebate 15/18/20*



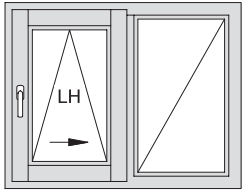
GALILEO CM

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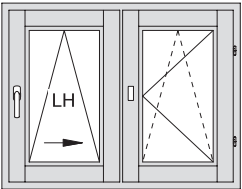
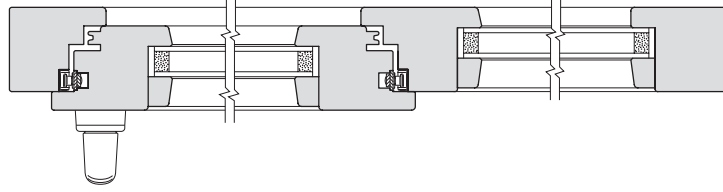
Important Notice!!!

- Give the user the enclosed leaflet “Instructions for use and maintenance”

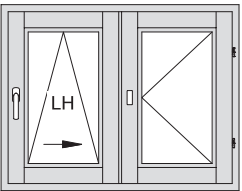
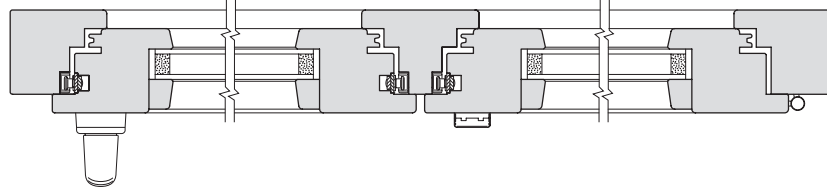
Opening layout



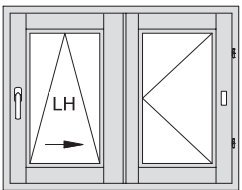
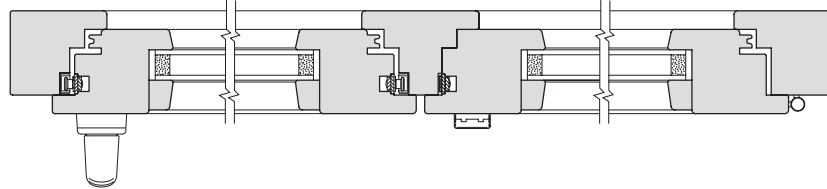
layout A



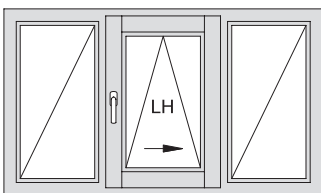
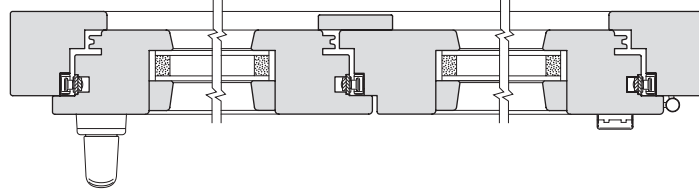
layout B



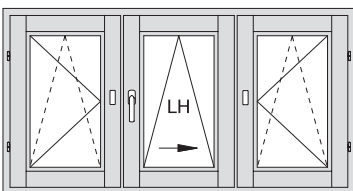
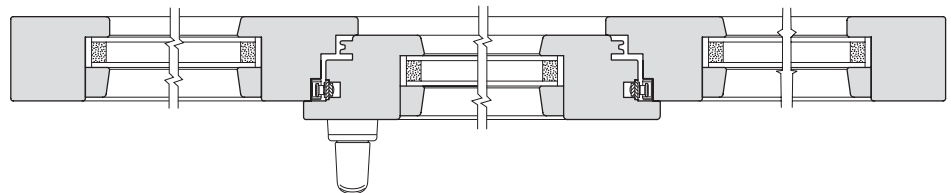
layout B1



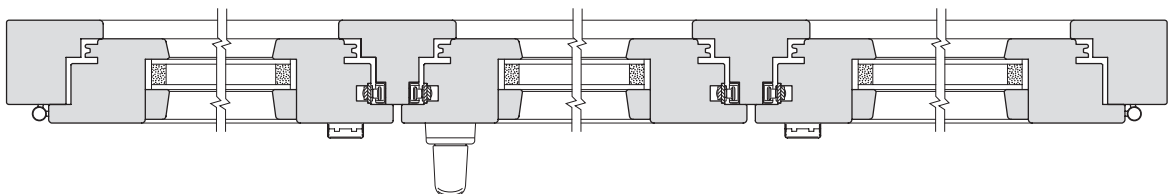
layout B2

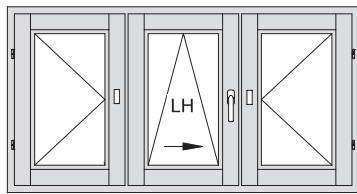


layout C

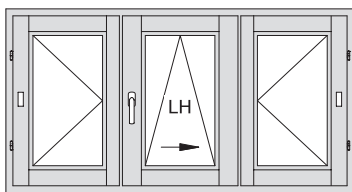
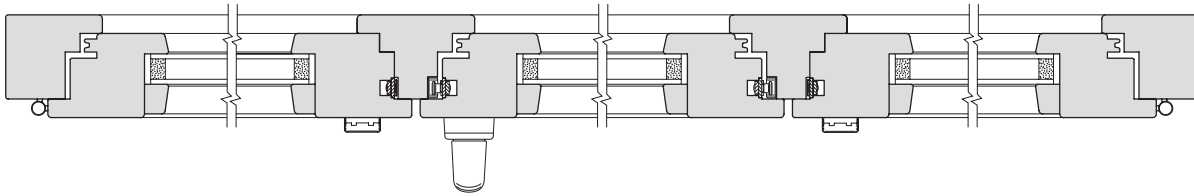


layout C1

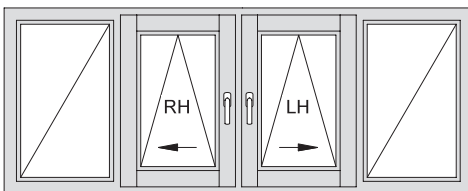
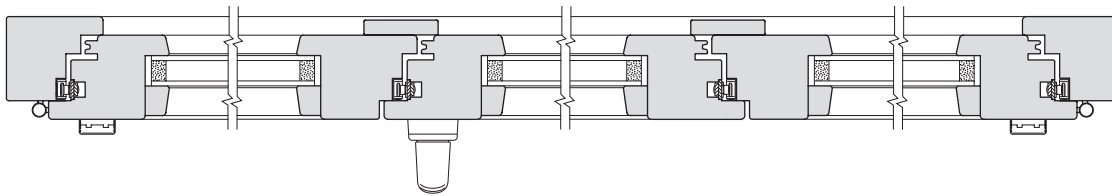




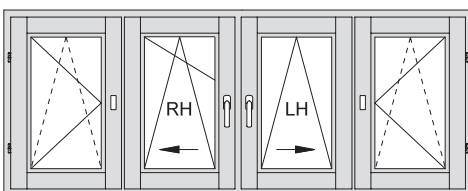
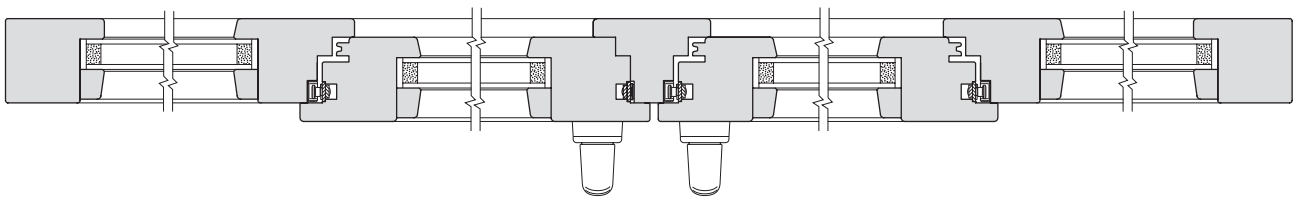
layout C2



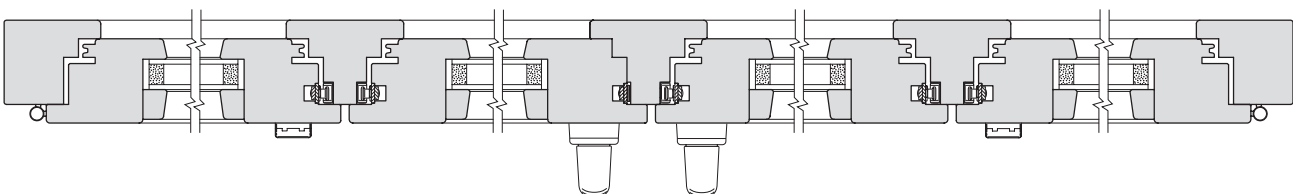
layout C3



layout E



layout F



Technical Characteristics

Applications

On Wooden, PVC, and alu-wood systems apart from gap and rebate. Galileo CM allows to use a traditional DK handle avoiding the use of a special handle.

Dimensions

The Galileo CM system is used for the construction of sliding sashes with sash rebate width (SRW) ranging from 530 to 1760 mm, and sash rebate height (SRH) ranging from 600 to 2400 mm.

A 500 mm extension (which can be trimmed to 250 mm) is available, allowing for the construction of sliding sashes with SRH in excess of the specified upper limit.

Maximum weight

The weight of each sliding sash equipped with the Galileo CM hardware must not exceed 150 kg.

Lower transom

Galileo CM can also be installed on very reduced from lower transoms. The minimum useful dimension allowed is based on a fixed 43 mm width + the overlap of the sash rebate on the frame:

- 54 mm for gap 04 rebate 15
- 57 mm for gap 04 rebate 18
- 50 mm for gap 11 rebate 18
- 52 mm for gap 11 rebate 20
- 49 mm for gap 12 rebate 18
- 51 mm for gap 12 rebate 20

Operating sequence

- 1) Measure and compare the diagonal dimensions (fig. 1) to make sure that the door rails and stiles and the frame jambs are square.
- 2) Identify the "Opening pattern" (see page 4).
- 3) Measure the **SRW** (fig. 2) and **SRH** (fig. 3) of each sliding sash.
- 4) Make sure that the gap between the rebate of the sash on which the hardware is installed and the corresponding rebate on the frame housing the strikers conforms to the specifications for the type of door construction.
- 5) Determine whether the sash is left or right handed. (fig. 4).

System advantages

Adjustable locking cams

All the locking telescopic cams can be adjusted using a 11 mm fix wrench.

Screw holes

Every screw hole is equipped with a rod guide/spacer that prevents the jamming of the sliding rods in the event that the 16/12 milling is not perfect, or when the screws are screwed down too tight.

Handle Height

Handle height adapted to tilt and turn sashes.

Carriage link rod

The rod connecting the front and rear carriages is made of steel and has a vertical oval cross section of 10x12 mm. This enables the "direct" transmission (with reduced tolerances) of the forced drive from the front to the rear carriage.

Anti-burglar system

Anti-burglar doors/windows may be obtained thanks to corner movements fitted with push rods that operate in connection with the corner links and engage the corresponding steel push rod strikers. This system provides excellent protection against breakin attempts.

Coaxial sashes

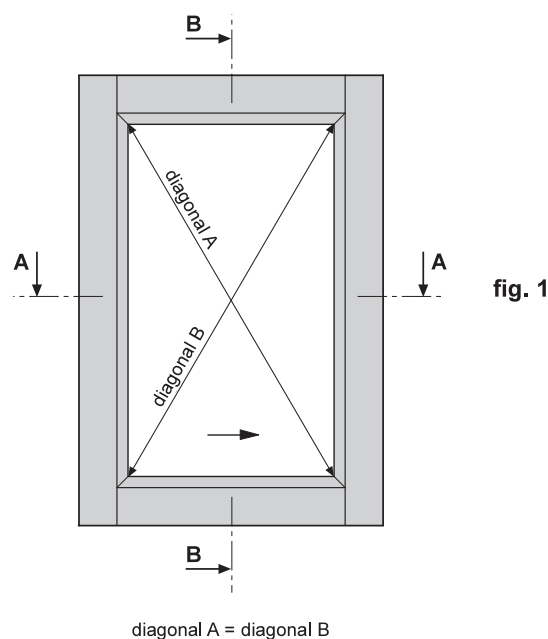
Sash layouts include the possibility of assembling coaxial sashes (layouts E or F) with double handle, thus ensuring the functionality of the semi-stationary sliding sash (only when designed with MR type central system point).

DK handle with short neck

For layouts featuring a sliding sash which opens over a swing sash (B, B1, C1, C2 and F) a handle can be applied directly on the semi-stationary sash thus avoiding the use of a cover moulding. The movement of the system to the sliding position has been increased so as to enable the application of a standard handle with short neck (overall dimension 25 mm).

Basic kits

To simplify the processing of orders, all the accessories (with the exception of "special" strikers and hardware) are sold in basic kits to be selected according to the hand, design and dimensions of the sliding sash.



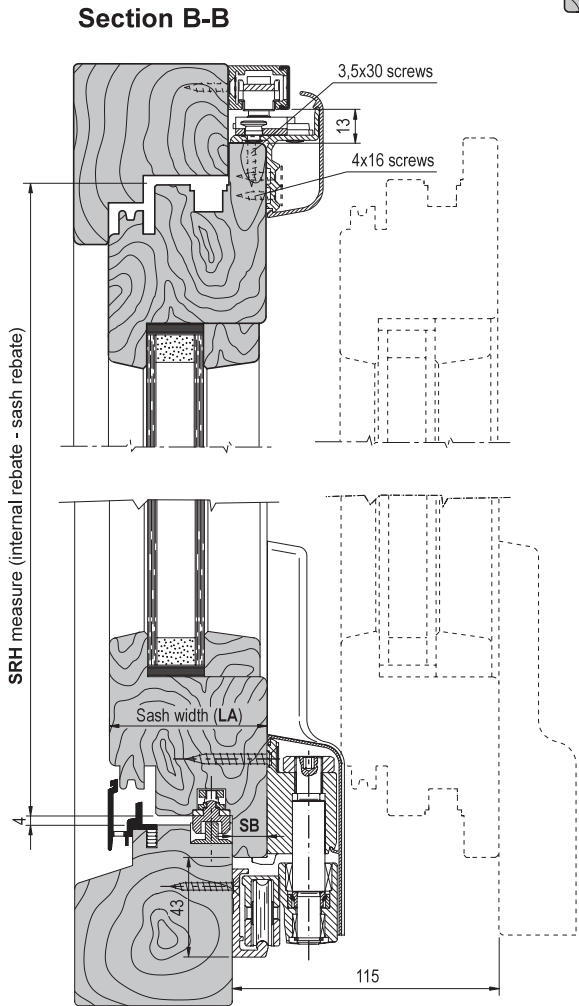
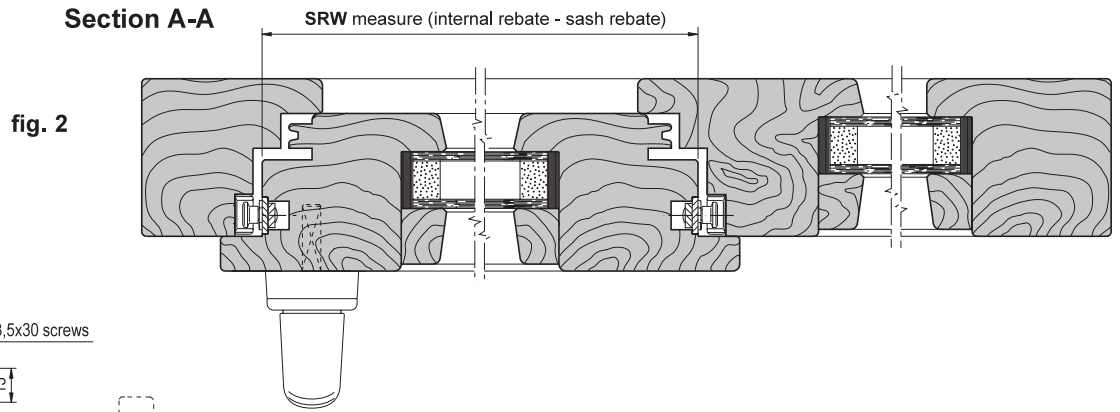
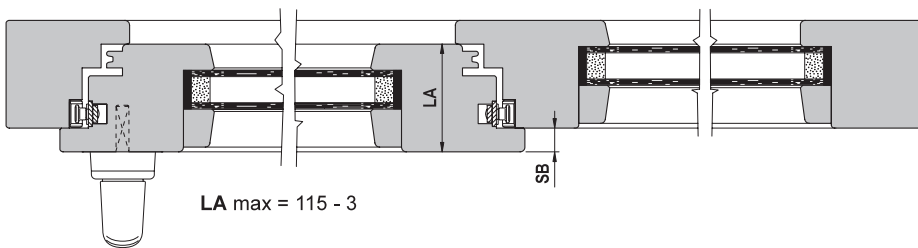


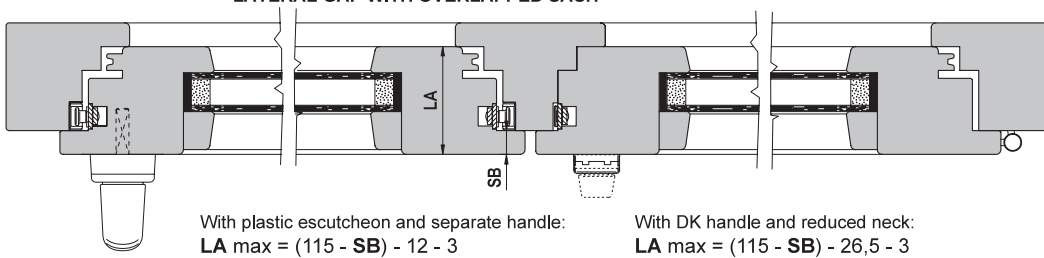
fig. 3

LA = Sash width
SB = Rebate thickness

LATERAL GAP WITH FIX GLASS



LATERAL GAP WITH OVERLAPPED SASH



Operating sequence

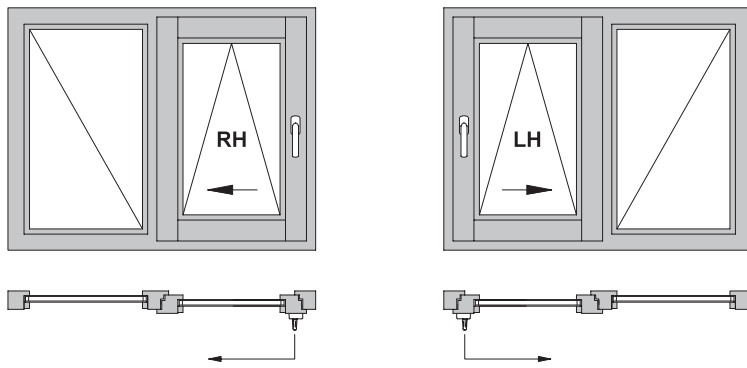
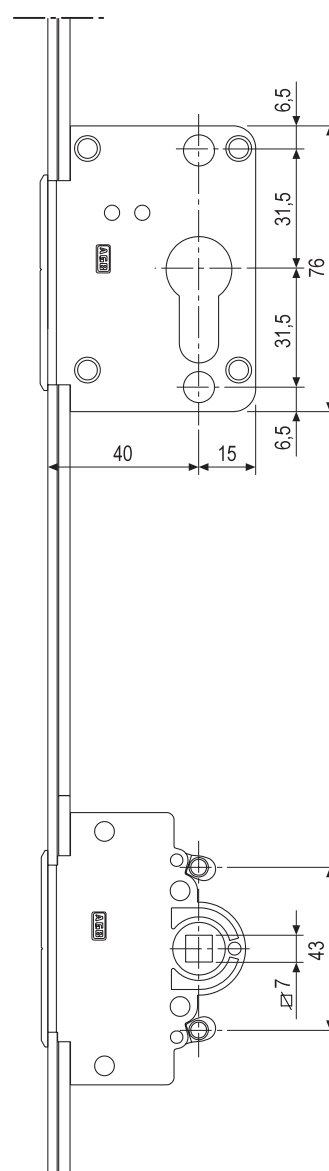
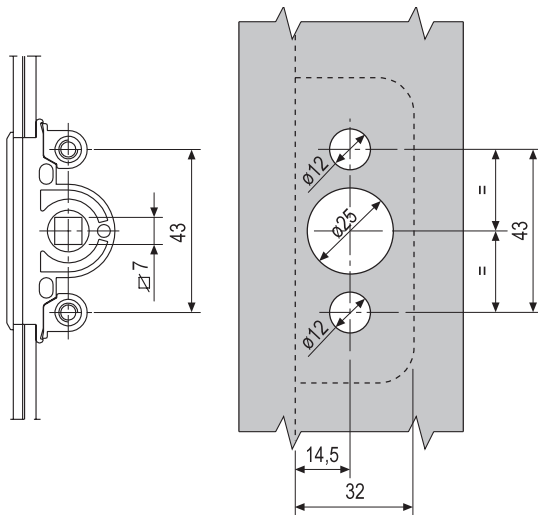


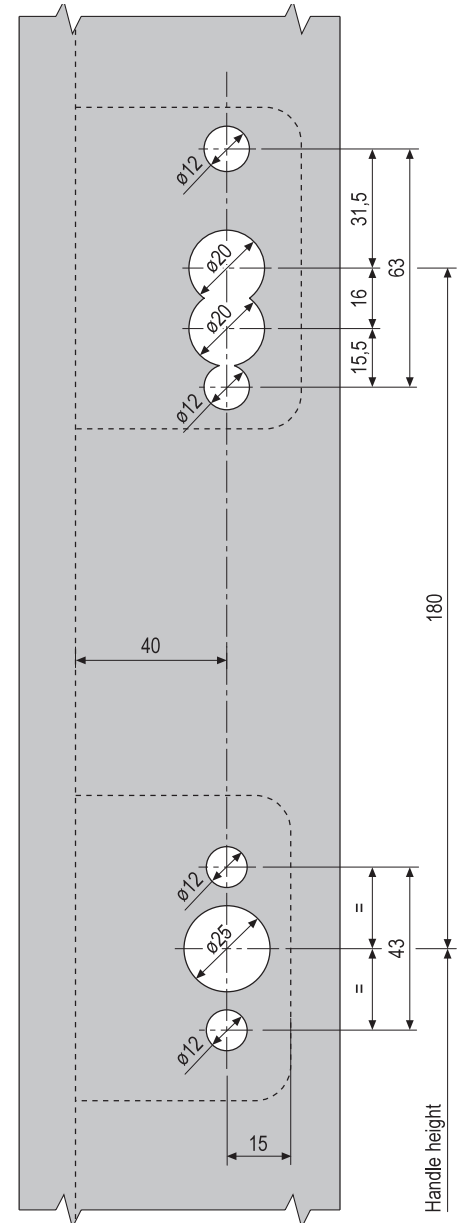
fig. 4

Millings for handle assembly

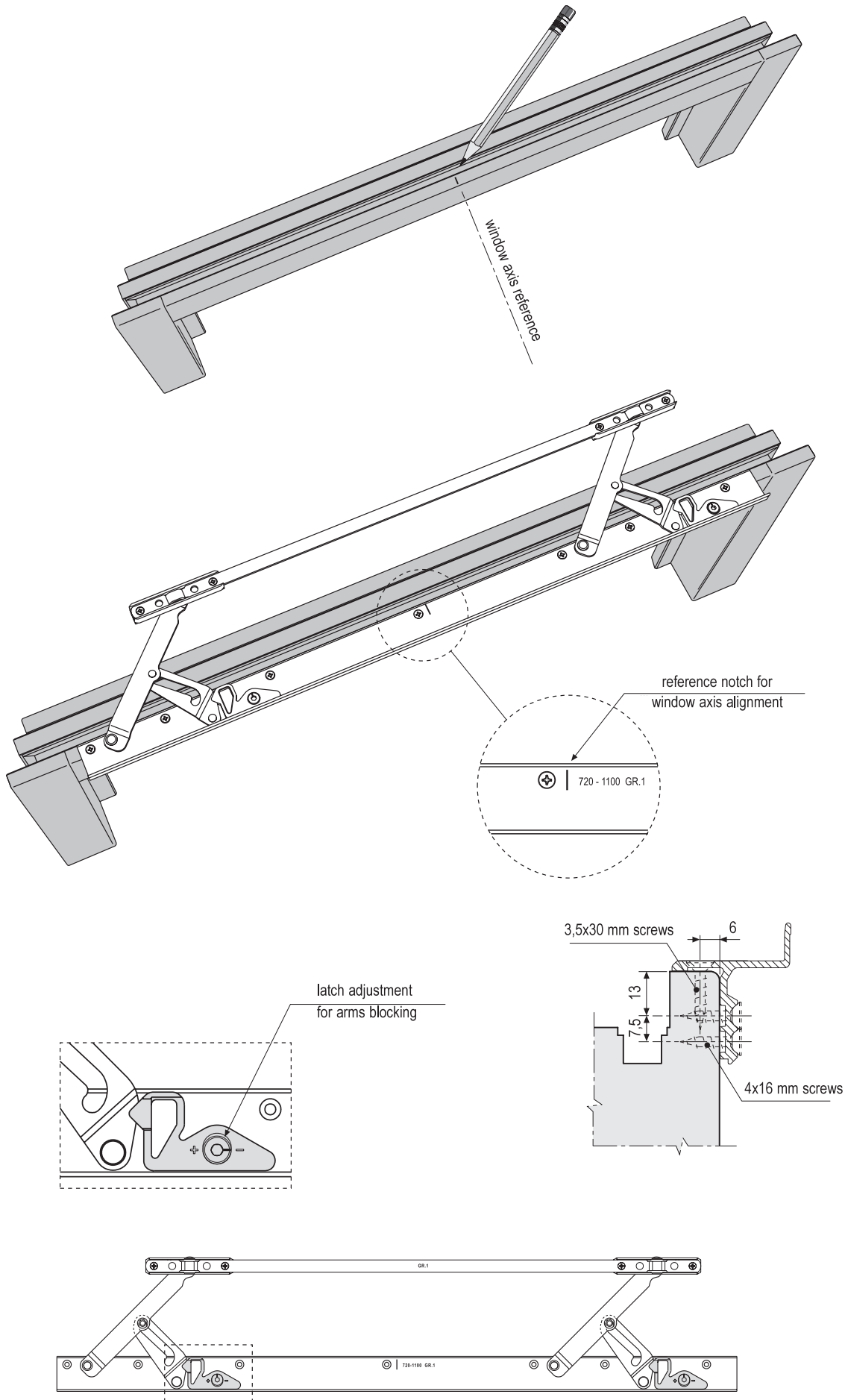
Handle fastening on espagnolette rod with M5 screws



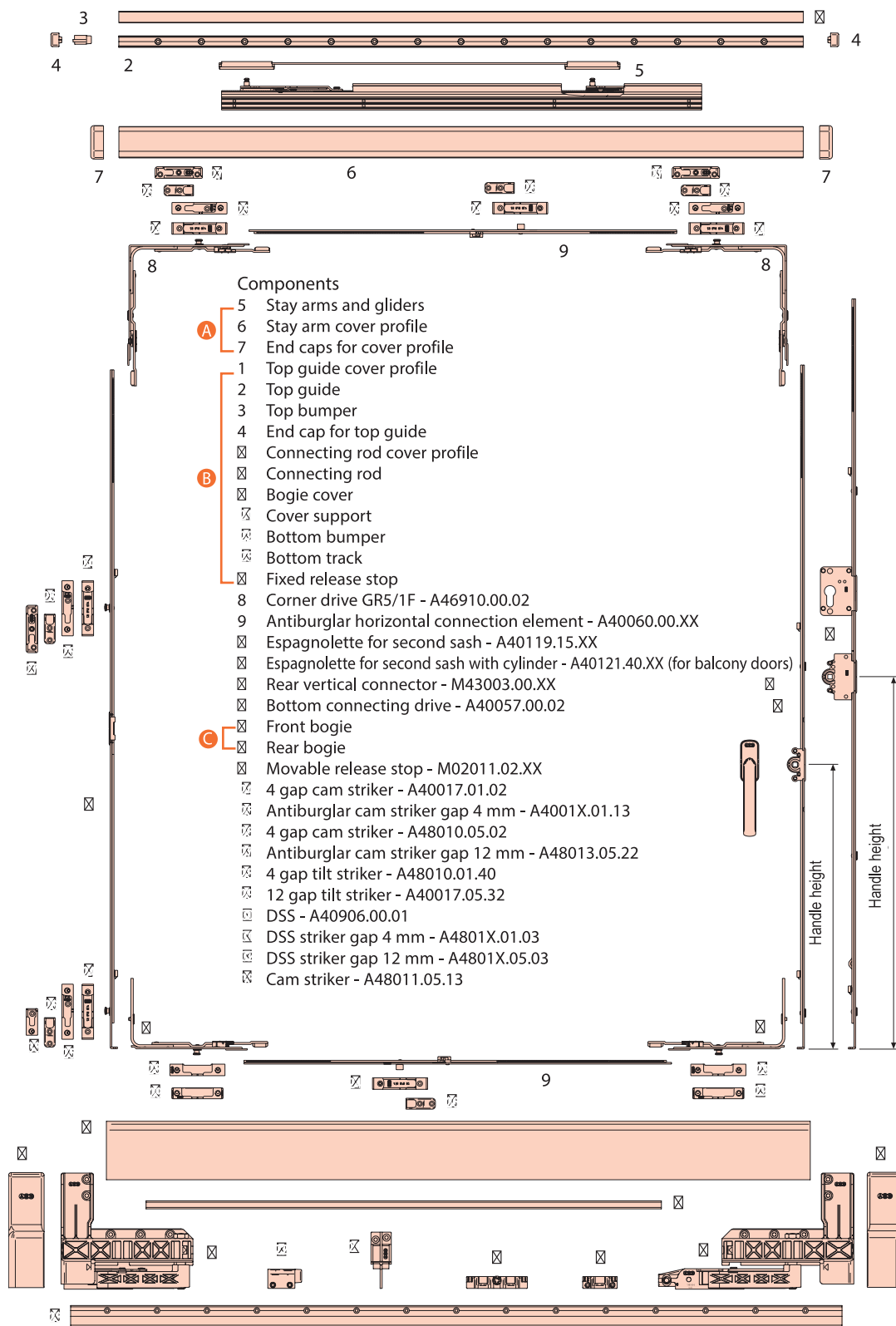
Handle fastening on espagnolette rod with M5 screws



Stay arm positioning



Example of hardware system for E layout - R.h. second sash



A Stay arm and accessories kit

M03114.10.XX - SRW = 530-720
 M03114.11.XX - SRW = 721-1100
 M03114.12.XX - SRW = 1101-1450
 M03114.13.XX - SRW = 1451-1760

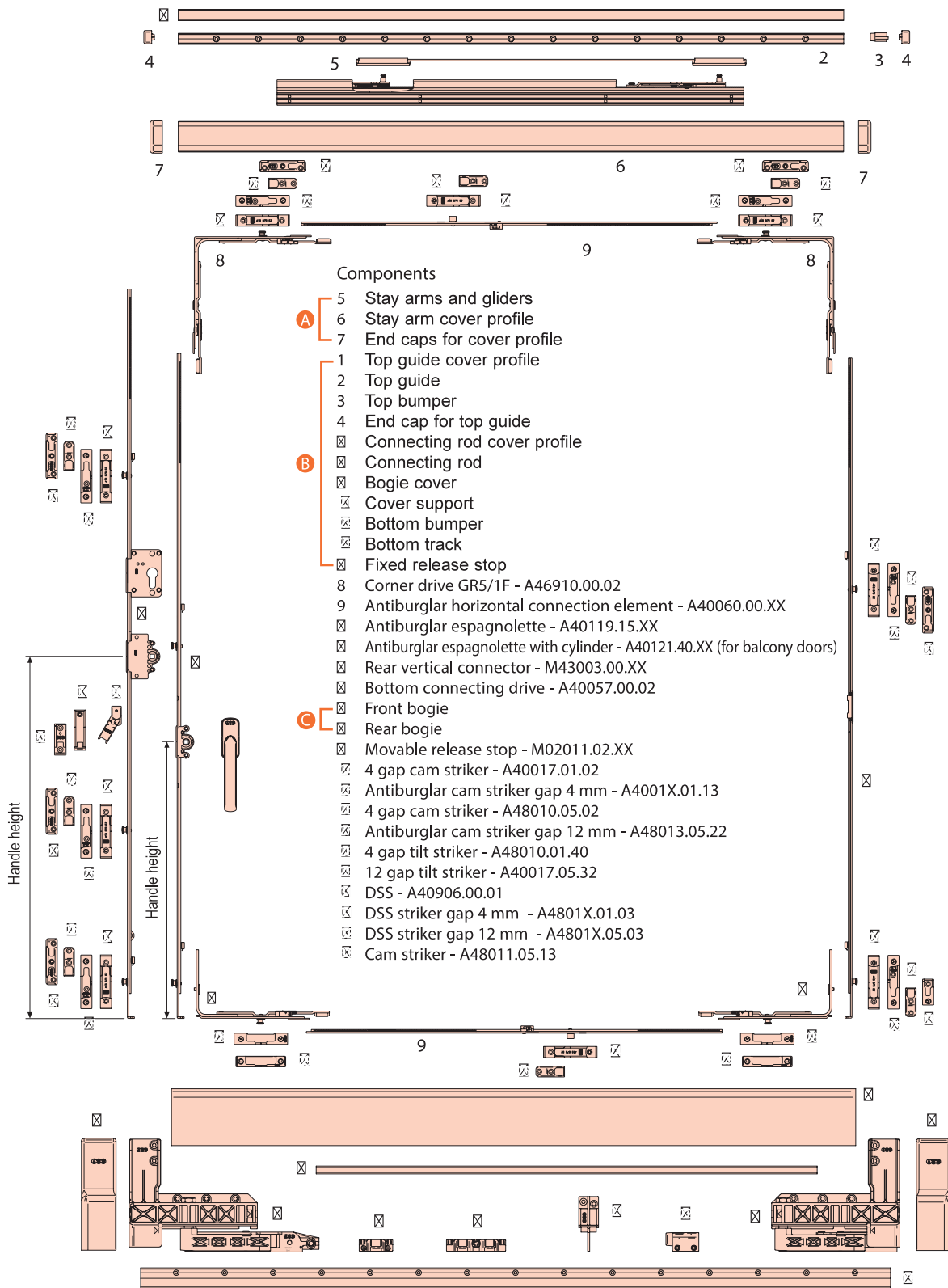
B Width accessories kit

M02022.00.XX - SRW = 530-720
 M02022.01.XX - SRW = 721-1035
 M02022.02.XX - SRW = 1036-1260
 M02022.03.XX - SRW = 1261-1510
 M02022.04.XX - SRW = 1511-1760

C Bogie kit

M42401.XX.00 R.h.
 M42401.XX.00 L.h.

Example of hardware system for E layout - L.h. main sash

**A Stay arm and accessories kit**

M03114.10.XX - SRW = 530-720
 M03114.11.XX - SRW = 721-1100
 M03114.12.XX - SRW = 1101-1450
 M03114.13.XX - SRW = 1451-1760

B Width accessories kit

M02022.00.XX - SRW = 530-720
 M02022.01.XX - SRW = 721-1035
 M02022.02.XX - SRW = 1036-1260
 M02022.03.XX - SRW = 1261-1510
 M02022.04.XX - SRW = 1511-1760

C Bogie kit

M42401.XX.00 R.h.
 M42401.XX.00 L.h.

Assembly of corner movements and connector elements

- 1) Apply and fix the upper corner drives (fig.1).
- 2) Apply and fix the lower corner drives by following the instructions impressed in the hardware forend: **A** = front; **P** = rear
Note. Use 3,5x35 mm screws partially threaded.
- 3) Adapt the connecting horizontal and vertical elements to the windows dimensions, by trimming the side with longer knurling. Before doing this operation, align the fixed rod and the movable rod and then trim as needed (see table).

Horizontal connector Kit

GR	SRW	Trim	
		Low.	Up.
0	530-755	-	225
1	747-972	92	225
2	973-1222	68	250
3	1223-1472	68	250
4	1473-1722	68	250
5	1712-1760	68	250

Note. Order 2 rods per sash (one top and one bottom).

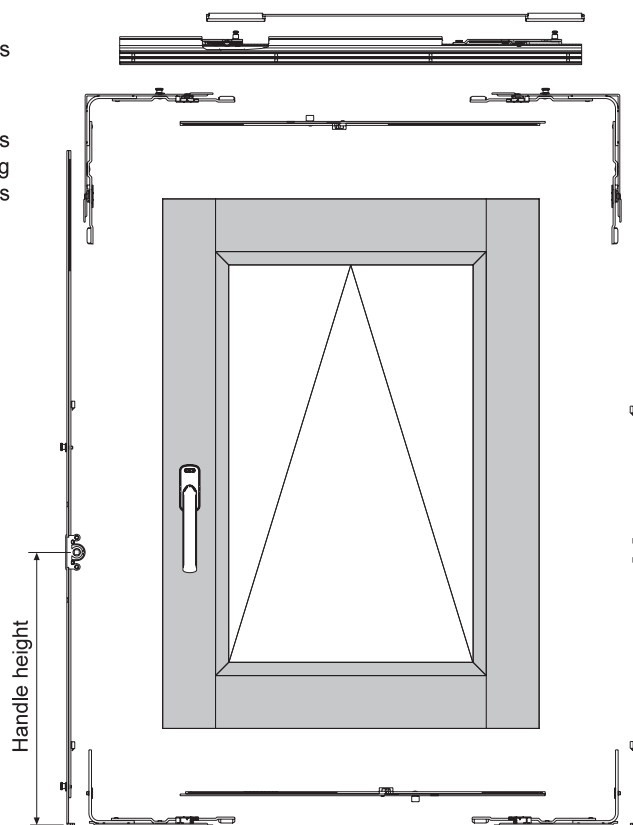


fig. 1

Antiburglar espagnolette table

GR	SRW	Handle height	Trim up.
0	435-550	170	200
1	490-600	170	200
2	600-800	280	200
3	801-1000	400	200
4	1001-1200	500	200
5	1201-1400	500	200
6	1401-1600	500	200
7	1601-1800	500	200
8	1801-2000	1050	200
9	2001-2200	1050	200
10	2201-2400	1050	200

Antiburglar espagnolette table with cylinder

GR	SRW	Handle height	Trim up.
8	1800-2000	1050	200
9	2001-2200	1050	200
10	2201-2400	1050	200

Carriage installation

- 1) Adjust the carriage drilling jig, art. M02030.00.02 (a), keeping in mind that, when $X=34$ (fig. 1), the carriage cover remains at 2 mm distance from the sash rebate edge (fig. 2).

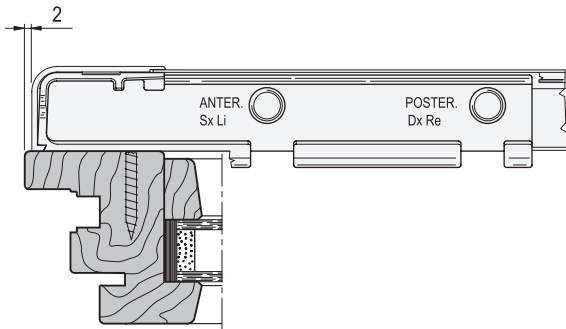


fig. 2

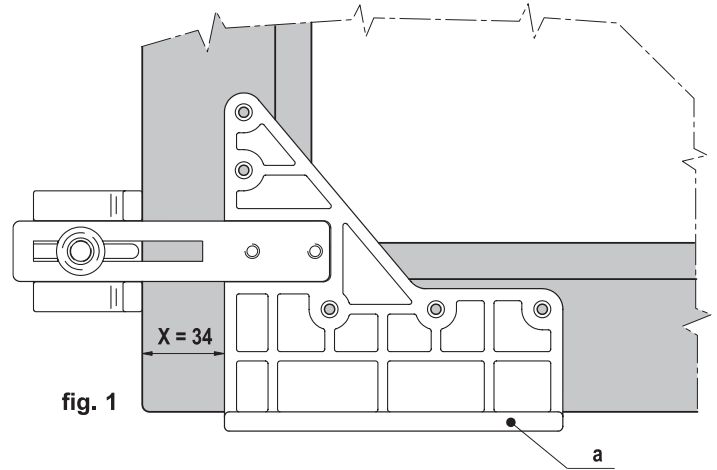
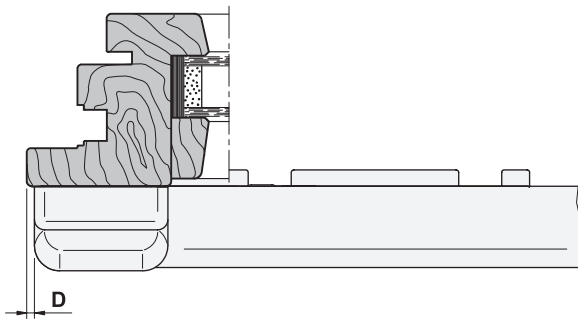


fig. 1



Note. To increase the distance between the cover and the sash rebate edge (D), adjust the jig (X) in the following example:

Ex: When $D=5$ mm \rightarrow $X=34+5-2$

When $D=0$ mm \rightarrow $X=34+0-2$

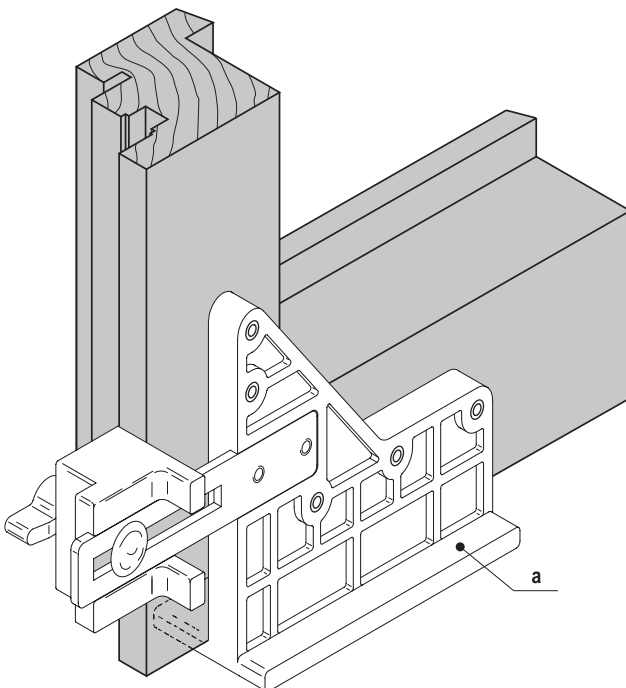


fig. 3

- 2) Position the jig art. M02030.00.02 (a) on the rebate of the lower rail or on a stile of the sliding sash (fig. 3). Drill 5 holes using a 4 mm drill bit, depth 40 mm.

- 3) Flip the jig art. M02030.00.02 (a) 180°, position it on the rebate of the lower rail and of the opposite stile. Drill five more holes using a 4 mm drill bit (fig. 4).
- 4) Position and fasten the carriages using 5x40 mm screws.

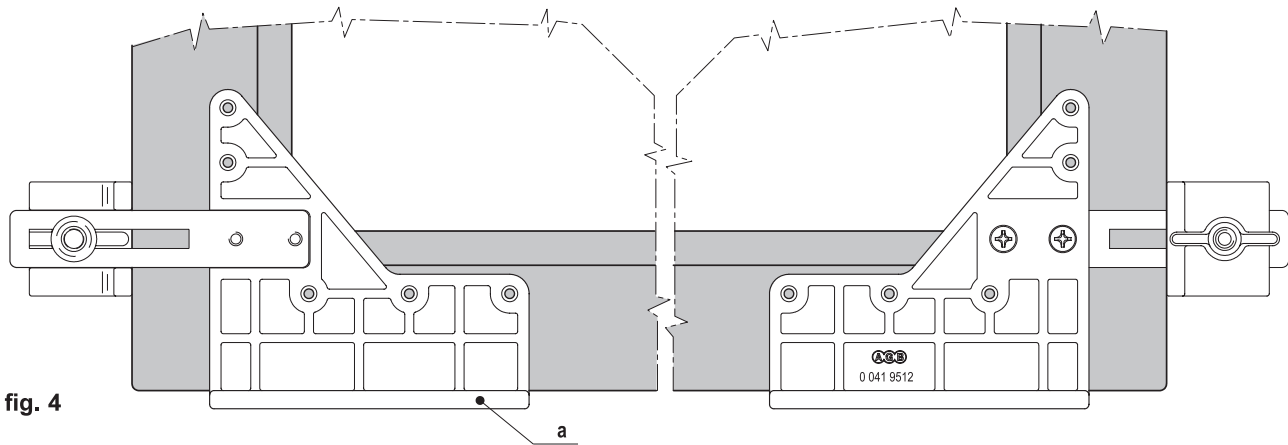


fig. 4

- 5) Lay the carriage link rod (b) in the seat (marked by an arrow) of one of the two carriages, and mark the cutting dimensions corresponding to the arrow on the opposite carriage (fig. 5).
- 6) Insert the link rod in the proper carriage seats. Fasten the socket head screw of the rear carriage using a 4 mm Allen wrench. Close the carriages and fasten the socket head screw of the front carriage.
- 7) To cut the cover trim to size refer to the arrows marked on the carriages (fig. 5).
- 8) Position the supports for the cover trim (c) and fasten them on the lower rail using 5x40 mm screws (you will need approximately one support for each meter of trim).

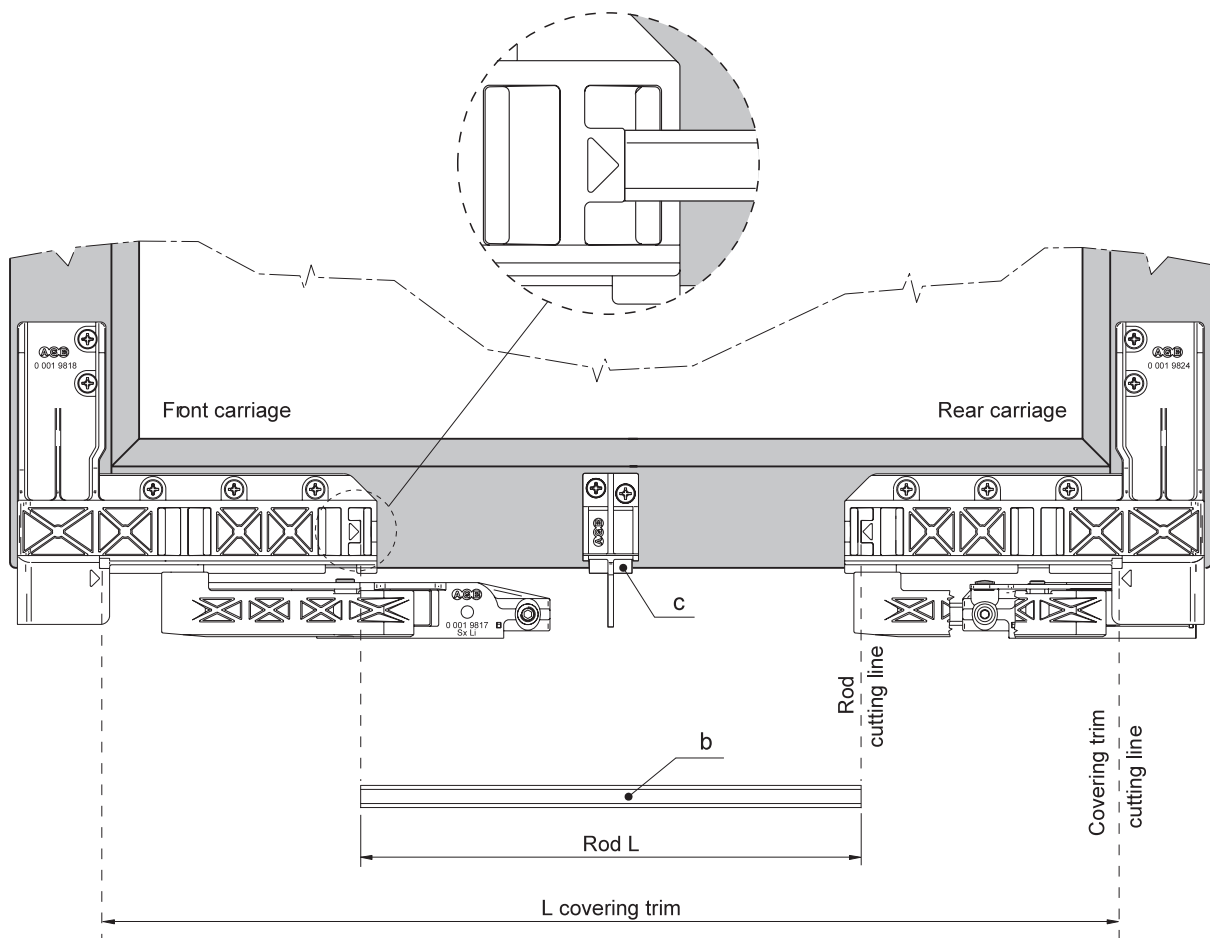


fig. 5

Milling positions and gap 4 mm striker installation

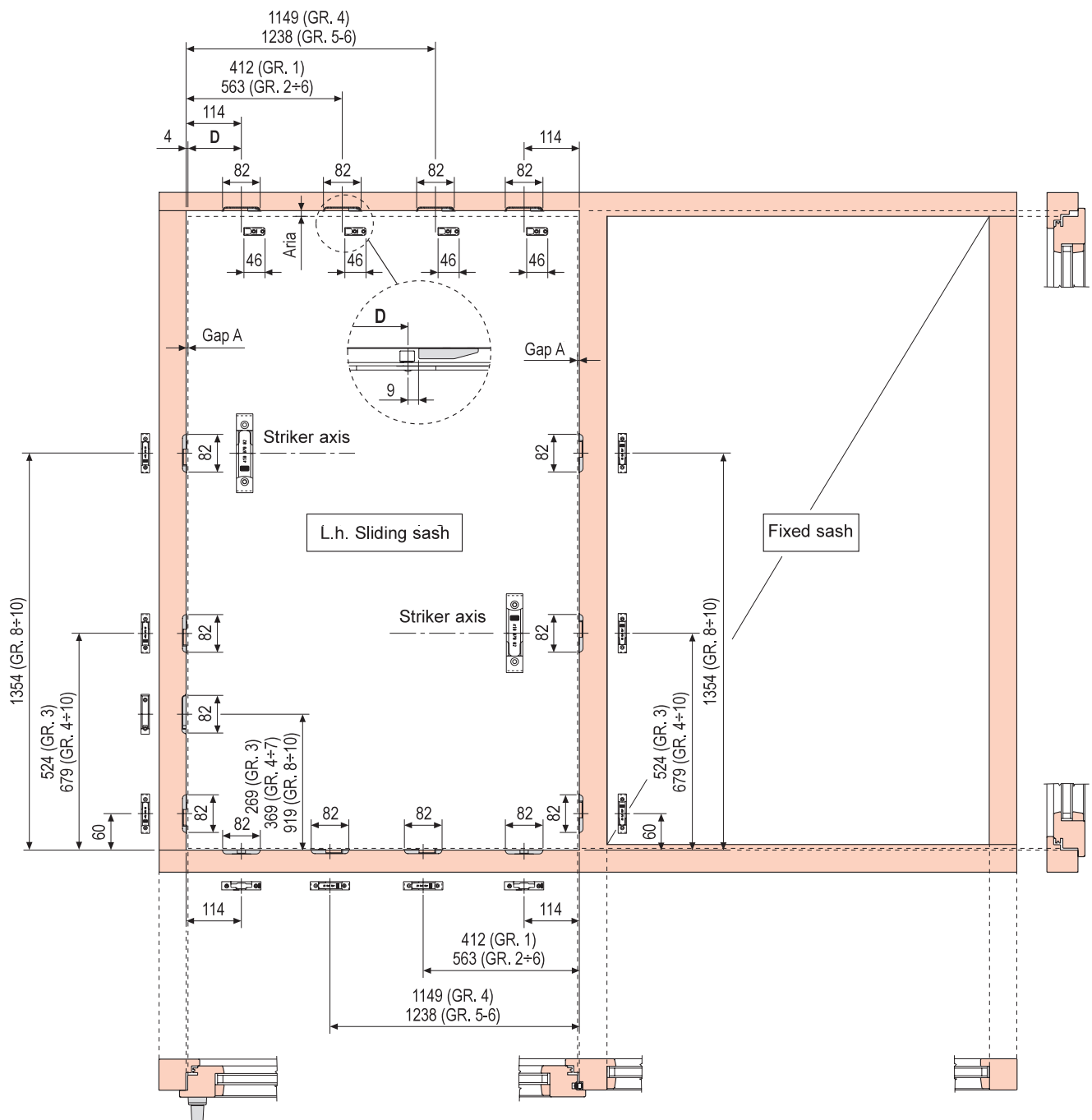
- 1) The cam strikers must be installed according to the closing direction of the hardware: clockwise for left sash and counterclockwise for right sash. Use 4x30 mm screws to secure it.
- 2) If the cam strikers on the top rail are to surface mount (art. A48010.05.02, gap 12 mm), they should be positioned on the frame, based on the GR size of the connection element according to the following rules:

D+4+9

D = closing position of the locking cam in relation to the hardware (408 GR1, 552 GR2=6, 1145 GR4, 1234 GR5 and 6).

4 = gap

9 = distance from locking cam axis to the striker edge



Gap 12 mm striker installation

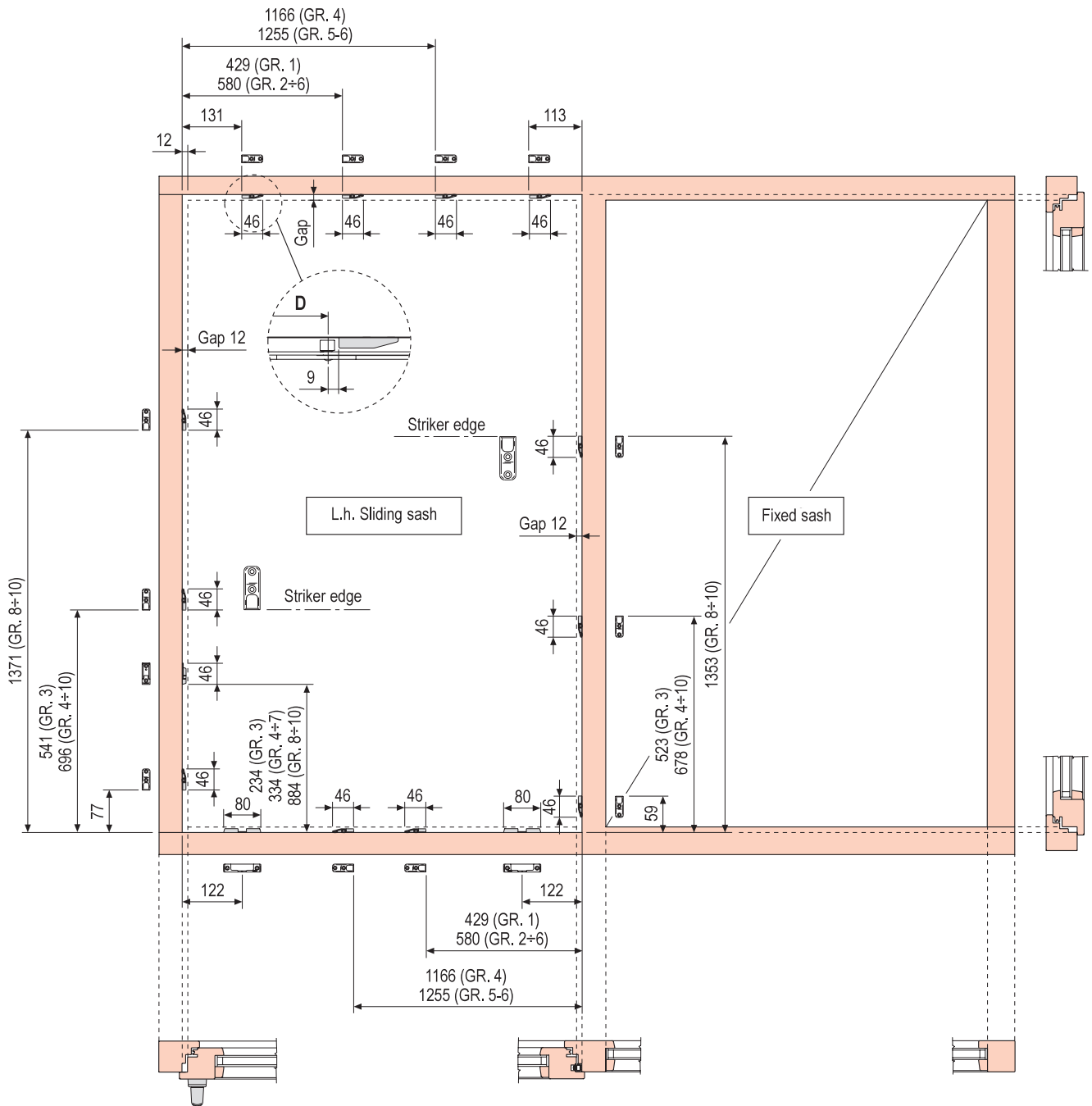
- 1) The cam strikers must be installed according to the closing direction of the hardware: clockwise for left sash and counterclockwise for right sash. Use 4x30 mm screws to secure it.
- 2) On the top rail, position on the frame, based on the GR size of the connection element, according to the following rules:

D+12+9

D = closing position of the locking cam in relation to the hardware (408 GR1, 552 GR2+6, 1145 GR4, 1234 GR5 and 6).

12 = gap

9 = distance from locking cam axis to the striker edge



Gap 12 mm antiburglar striker installation

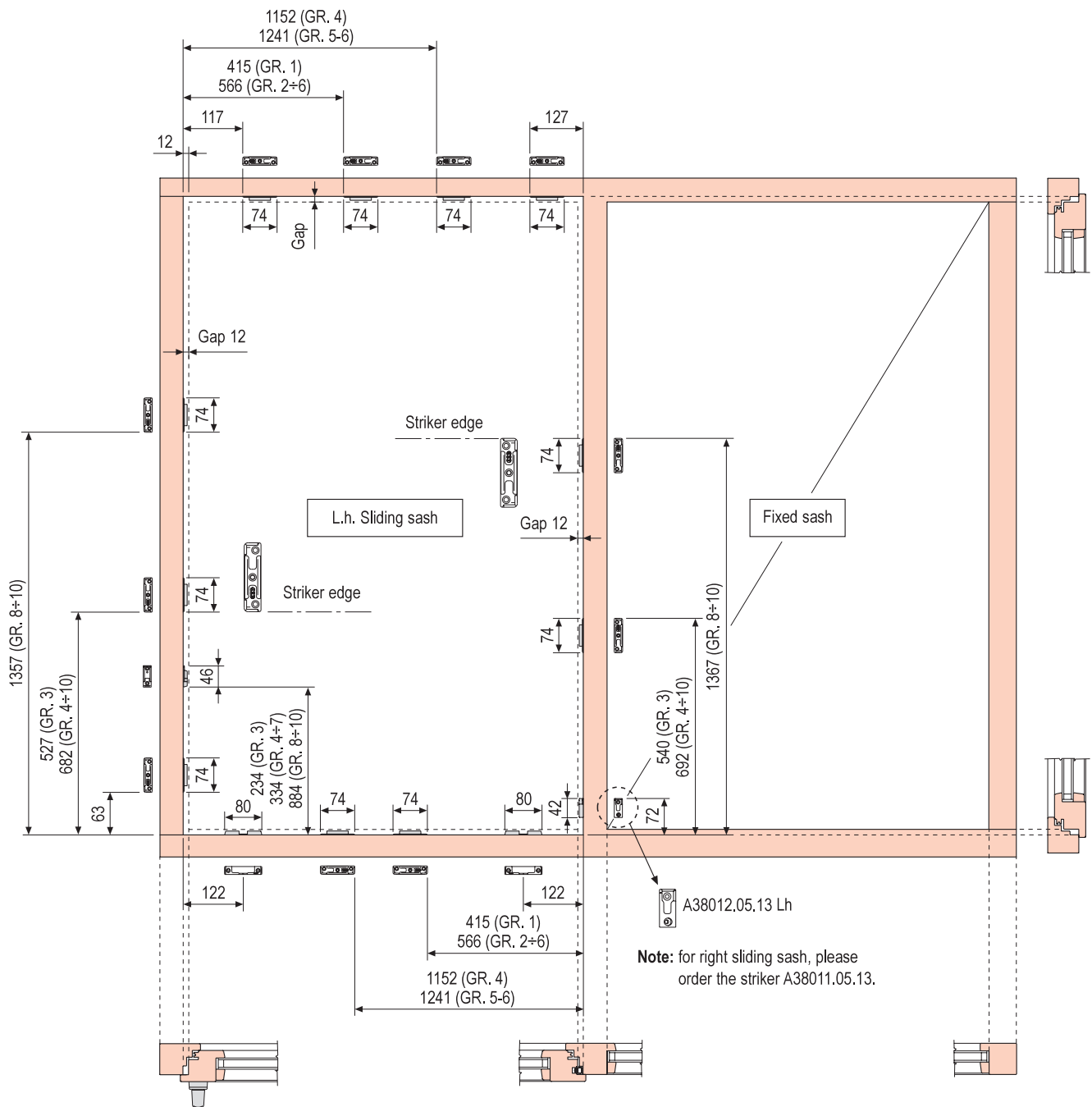
- 1) The cam strikers must be installed according to the closing direction of the hardware: clockwise for left sash and counterclockwise for right sash. Use 4x30 mm screws to secure it.
- 2) On the top rail, position on the frame, based on the GR size of the connection element, according to the following rules:

D+12+9

D = closing position of the locking cam in relation to the hardware (408 GR1, 552 GR2+6, 1145 GR4, 1234 GR5 and 6).

12 = gap

9 = distance from locking cam axis to the striker edge



Bottom rail installation

Before proceeding with the installation of the rail and top guide you must decide whether you wish to refer to the internal or the external rebate of the frame.

Jig art. M02030.00.04 (a) is suitable for both types of installation and must be adjusted accordingly.

- 1) Adjust the jigs, art. M02030.00.04 (a), according to the X measure, with reference to the internal rebate (fig. 1); place to lower block on the frame and secure it.
- 2) The number of jigs (at least two) needed for proper assembly depends on the length of the rail (we recommend to use one jig for every 500 mm of length).
- 3) For diagrams A, B, C, C1, E, cut the rail art. M02004 (b) to match the sash rebate edge or calculate its length and subtract 70 mm from the external length of the frame (fig. 2). For diagrams B1, B2, C2, the width of the rail must be the same as the outer width of the frame, minus the trim overlap.
- 4) Position the rail art. M02004 (b) on the frame lower transom with the help of the jigs (fig. 3) and fasten everything using clamps.
- 5) For proper operation of the system, counterbore each screw hole by 3 mm (fig. 4) using jig art. M02030.00.05 (c). Fasten the rail using 4x30 mm screws.

Note. Leave at least 5 mm gap between rail and floor.
In case of particularly large or heavy sashes made of soft wood or PVC, rest the rail, if possible, on the floor or insert a shim (d) (fig. 5).

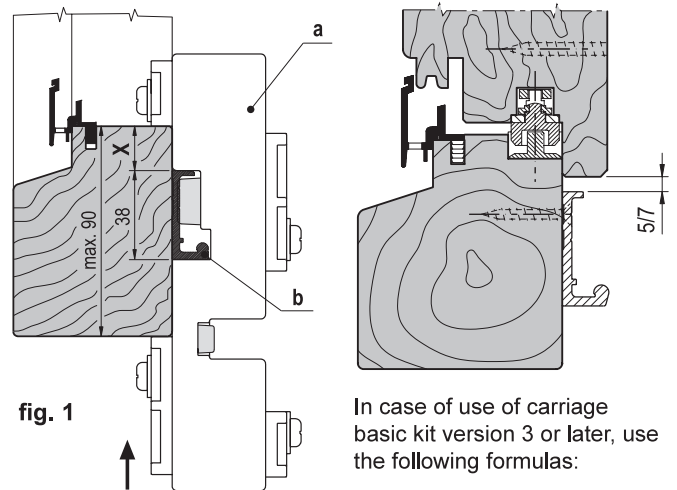


fig. 1

In case of use of carriage basic kit version 3 or later, use the following formulas:

$$X = \text{overlap} + 7 \quad \text{for sashes up to 80 kg}$$

$$X = \text{overlap} + 5 \quad \text{for sashes from 80 to 150 kg}$$

$$\text{overlap} = \text{rebate} - \text{gap}$$

Ex.

$$\text{gap} = 4 \text{ mm} \quad \text{rebate} = 15 \text{ mm}$$

$$\text{overlap} = 15 - 4 = 11 \text{ mm}$$

$$X = 11 + 5 = 16 \text{ mm}$$

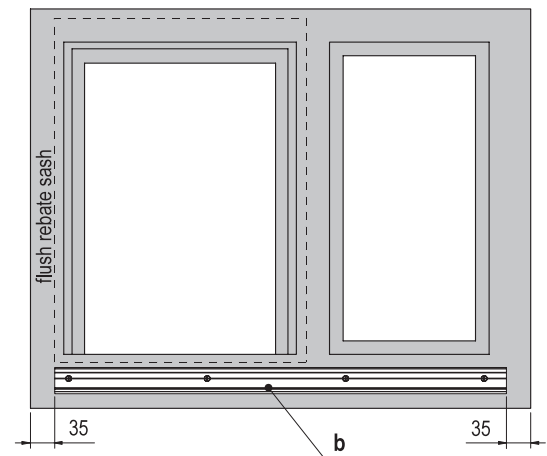


fig. 2

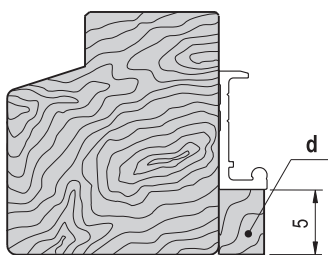


fig. 5

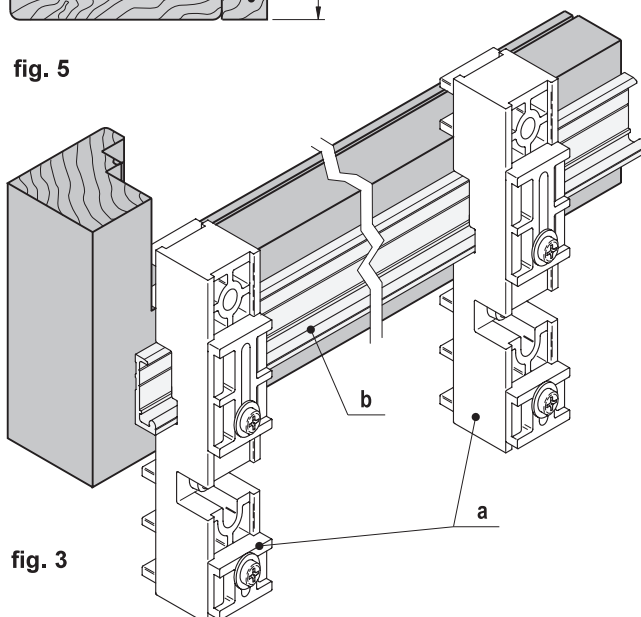


fig. 3

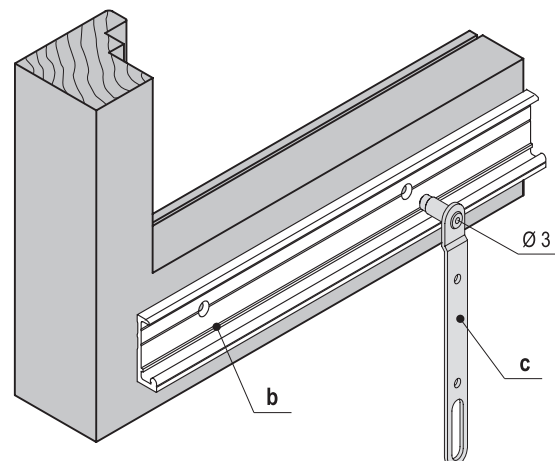


fig. 4

Top guide installation

- 1) Adjust the jigs, art. M02030.00.04 (a), according to the Y measure, with reference to the internal rebate (fig. 1); place to lower block on the frame and secure it.
- 2) For diagrams A, B, C, C1, E, cut the guide art. M02006 (b) to match the sash rebate edge or calculate its length and subtract 70 mm from the external length of the frame (fig. 2). For diagrams B1, B2, C2, C3, F, the width of the rail must be the same as the outer width of the frame, minus the trim overlap.
- 3) Position the guide on the head jamb of the frame with the help of the jigs (fig. 3) and fasten everything using the clamps.
- 4) For proper operation of the system counterbore each screw hole by 3 mm (fig. 4) using jig art. M02030.00.05 (c). Fasten the rail using 4x30 mm screws.
- 5) Insert the two support runners in the guide (d).

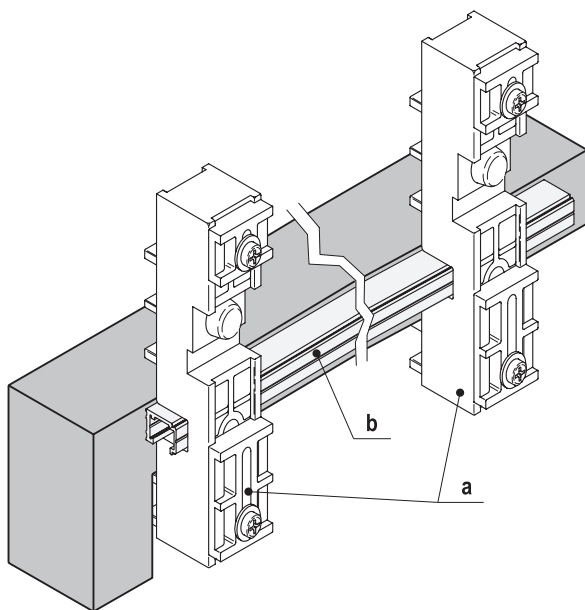
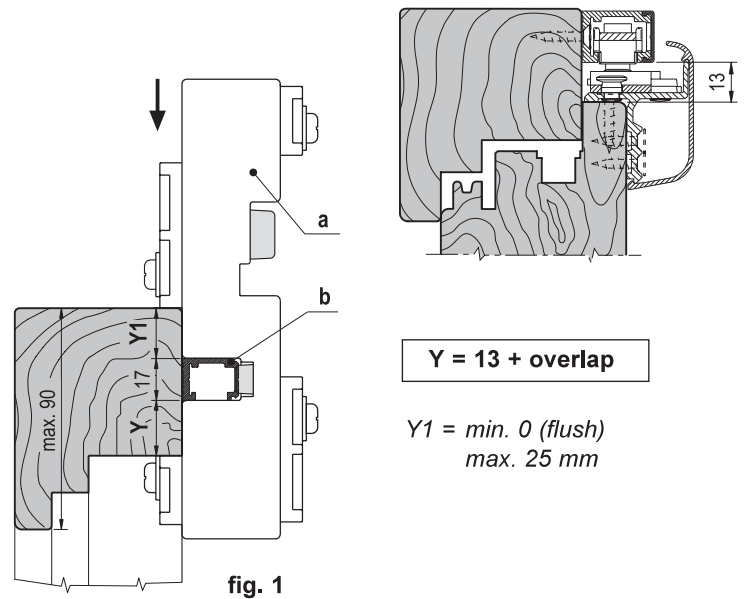


fig. 3

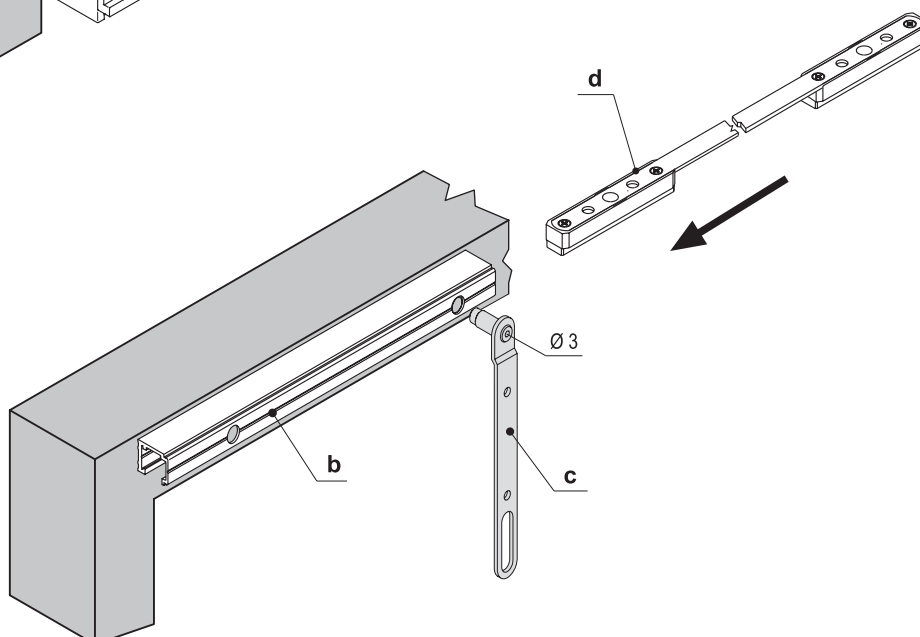


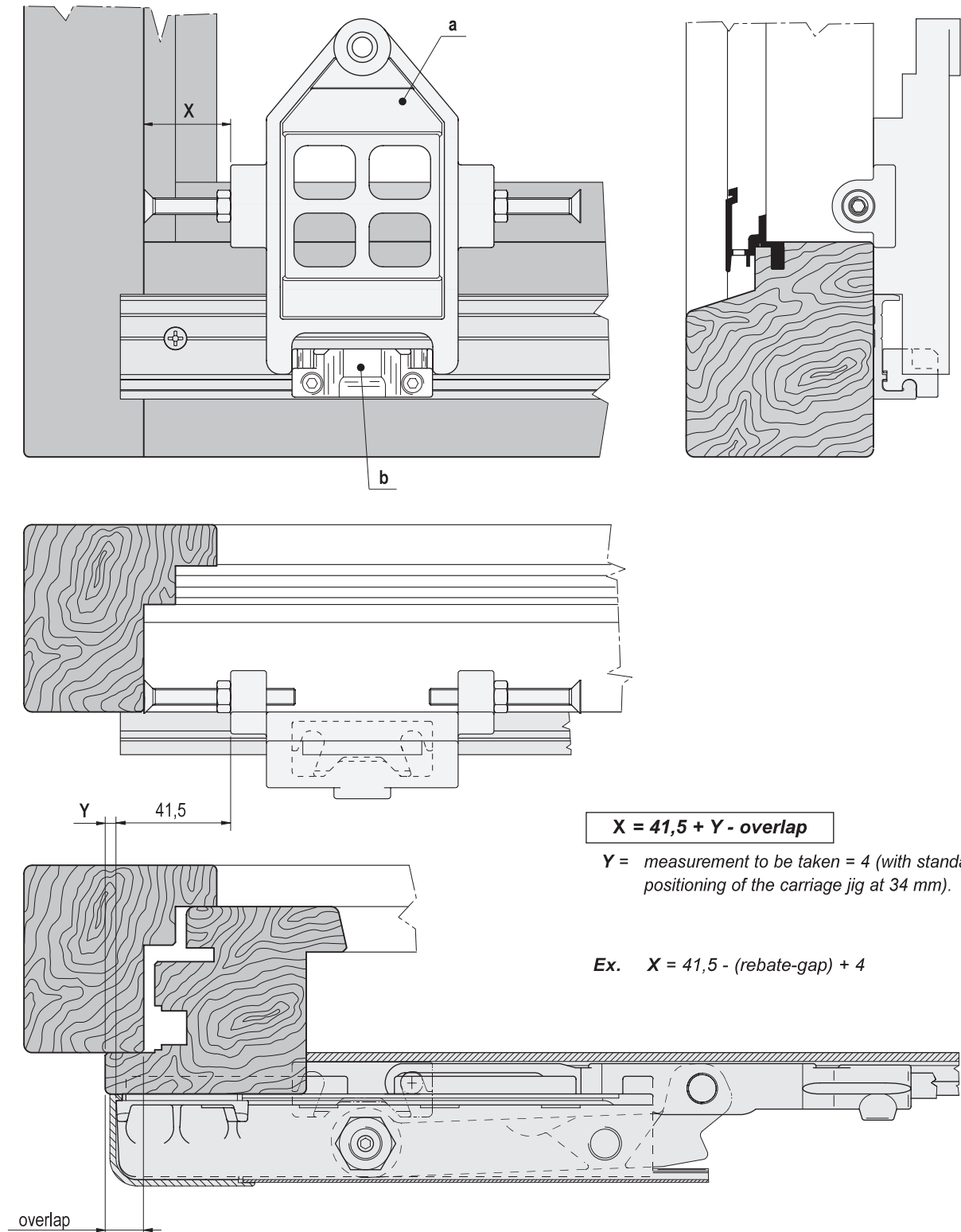
fig. 4

fig. 2

Installation of fixed release block

(standard version included in basic kit - for layouts A&B)

1) Adjust the **X** measurement of the jig, art. M02030.00.03 (a) for the positioning of the release block, art. M02011.01 (b), as follows:



- 2) Slide the release block (b) on the bottom rail (c) of handle side by sliding track and security tooth (fig. 1).
- 3) Place the jig (a) over the release block and slide it along the frame lower transom until the side adjustment screw rests against the jamb on the handle side (fig. 2).
- 4) With a 4 mm Allen wrench fasten the release block by means of the pre-assembled socket head screws (d).

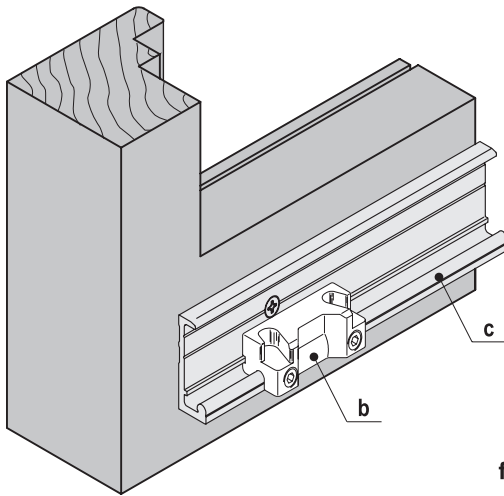


fig. 1

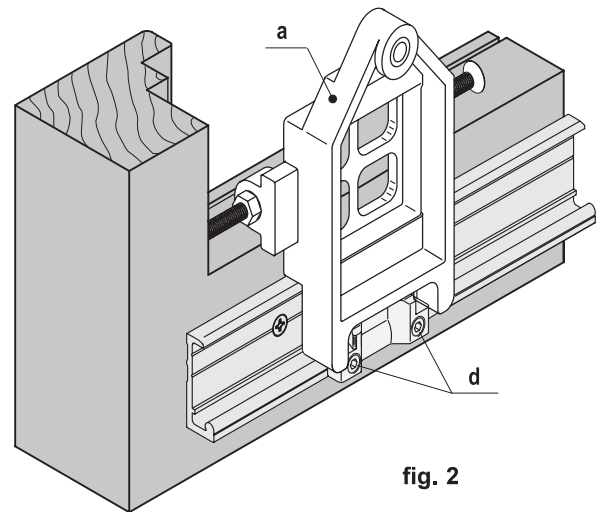


fig. 2

Installation of movable release block *(for B1, C2, C3, layouts)*

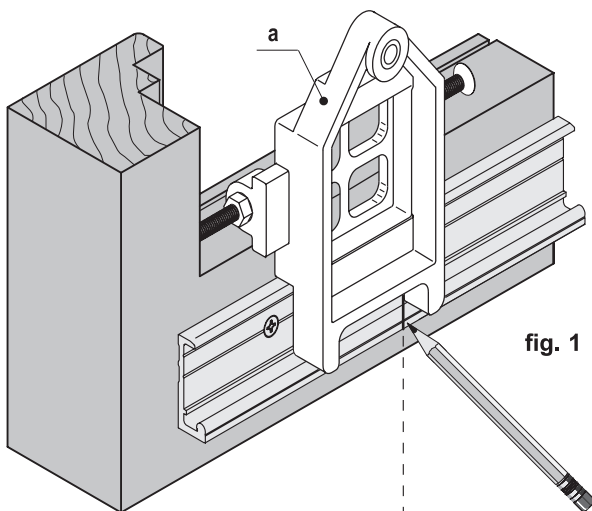


fig. 1

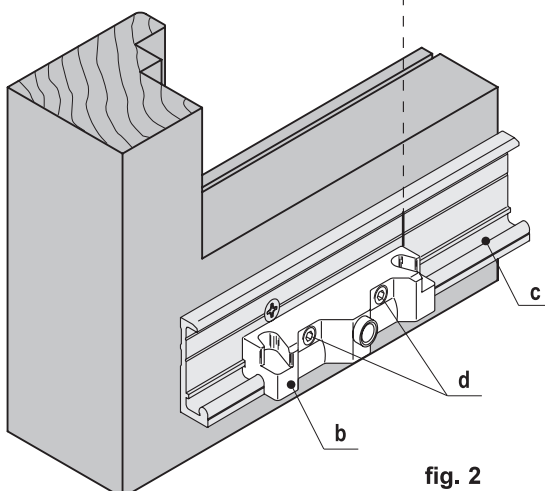


fig. 2

- 1) Adjust the jig, art. M02030.00.03 (a), (see point 1, page 22) and position it on the lower transom so that side adjustment screw rests against the jamb on the handle side. Mark the position (fig. 1).
- 2) Slide the jig art. M02030.00.06 (b) on the rail (c) up to the reference mark (fig. 2), fasten the dowels temporarily (d), test the closing of the sliding sash making sure that the overlap of the sash on the frame is correct. Now drill using a 6.8 mm bit (fig. 3).
- 3) Remove the jig (b), insert the movable release block and place it on the hole.

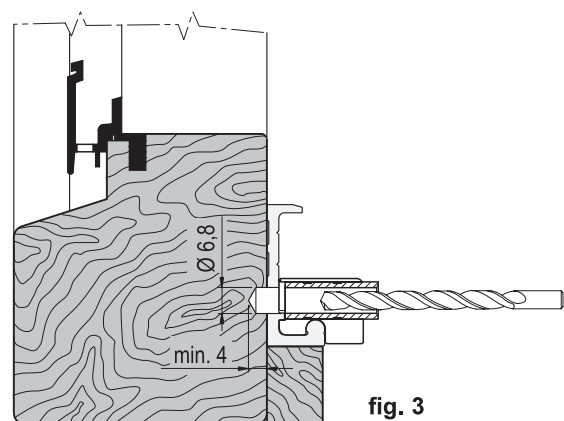


fig. 3

Sash assembly on the frame

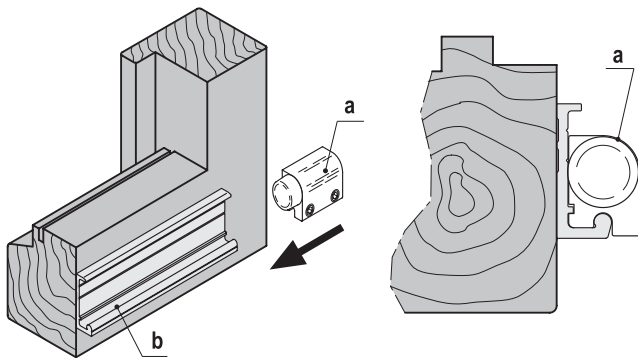
- 1) Position the handle horizontally (tilt opening).
- 2) Open the stay arms.
- 3) Place the sliding sash (a) on the bottom rail (b) making sure that the carriage wheels are aligned to run on the rail (fig. 1).
- 4) Position the sliding sash vertically.
- 5) Align the support runners (c) (previously inserted in to the top guide) with the corner movement hinge pins. Slide the pin in the centre hole of the runner and push the hinge arm until you hear it snap on. Repeat the operation for the other hinge arm.

Note. To release the runners, insert a screwdriver in the holes at the sides of the pin or push and simultaneously lower the hinge arm.

Bumper installation

Rear bottom bumper:

- 1) Mount the bumper art. M02011.03 (a) on the bottom rail art. M02004 (b), by the sliding track and security tooth.
- 2) Align the bumper with the edge of the bottom rail.
- 3) Using a 4 mm Allen wrench, fasten the bumper by means of the socket head screws.

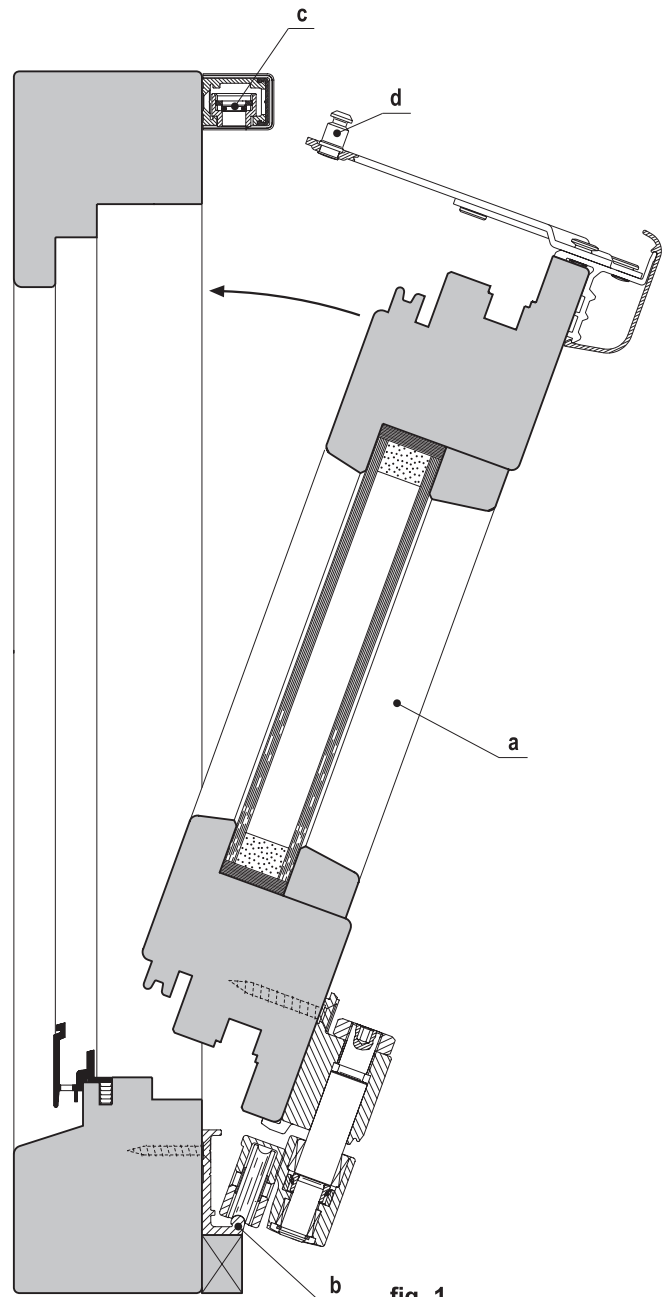
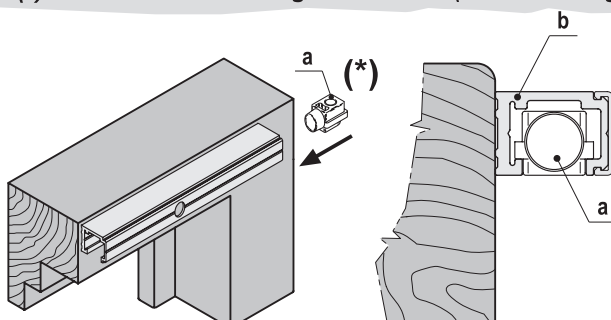


Upper bumper:

To prevent the derailment of the sliding sash, a bumper must be installed on the top guide.

- 1) Position the sliding sash against the rear bottom bumper art. M02011.03
- 2) Mount the top bumper M02010.00.04 (a) on the top guide art. M02006.04 (b) and push it until it rests against the upper hinge runner.
- 3) Move the sliding sash to the closing position.
- 4) Move the top bumper about 2 mm towards the opening side to compensate for the tolerances of the hinges.
- 5) Using a 4 mm Allen wrench fasten the bumper by means of the pre-assembled socket head screw.

(*) Note. Do not use on right hand sash (slides from right to left).



WARNING!!!

If you disassemble the system, you should provide for adequate sash support (2 people) after the release of the upper hinges to avoid damage to people or property.

System adjustments

The Galileo SA Coplanar Sliding System has been designed keeping in mind all the problems (and related solutions) that are commonly encountered at installation sites.

If the frame is properly constructed and assembled and the sliding sash has a constant 4, 11 or 12 mm gap between the perimeters of the two rebates, no further adjustments are normally needed.

If these conditions are not satisfied or in case of structural settling or increased play, proceed as follows:

Vertical adjustment of carriages (fig.1)

The sash sliding carriages must be adjusted so that the bottom edge of the sash and the upper edge of the rail are parallel and 5 mm a constant distance.

Proceed as follows:

- 1) Loosen the lock nuts (a) using a 19 mm Allen wrench.
- 2) Using a 4 mm Allen wrench, adjust the dowels (b). The adjustment stroke is + 6, -3 mm from the original position.
- 3) Tighten the lock nuts (a).

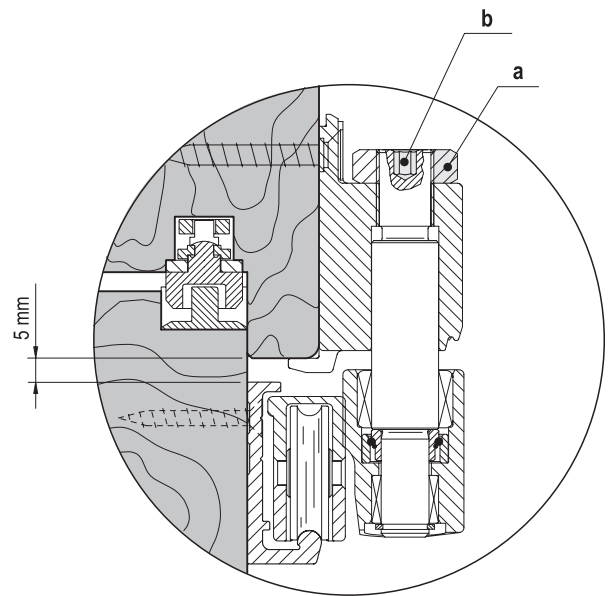


fig. 1

Sash position horizontal adjustment

To move the sash right or left, just move the release block. Keep in mind that:

- 1) The movable release block, if properly installed, does not require any further adjustment.
- 2) The fixed release block may shift due to the loosening of the socket head screws with time.

Sash pressure adjustment (fig.2)

If the sash does not exert proper and evenly distributed pressure around the entire seal, adjust each locking cam (c) using a 11 mm fix wrench.

The locking cam adjustment range is ± 1 mm (fig.2).

Adjusting of arm block (4 mm allen wrench)

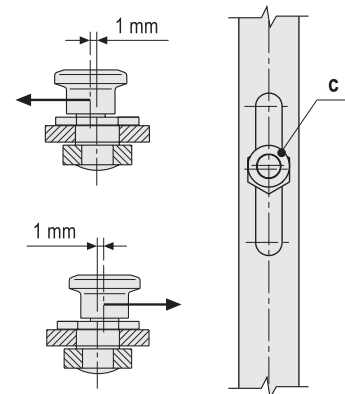
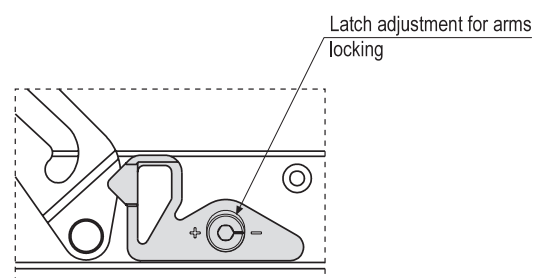


fig. 2



Cover installation

To simplify adjustment and prevent damage to the covers during transportation, we suggest to install them on site as the final operation.

Carriage cover (fig. 1-2)

- 1) Hook on the previously cut carriage cover trim (a) as indicated by the arrow, (point 1).
- 2) Press the cover trim (a) down and push it forward, (point 2), until you hear it snap on.

Note. To remove the cover, press downwards and pull.

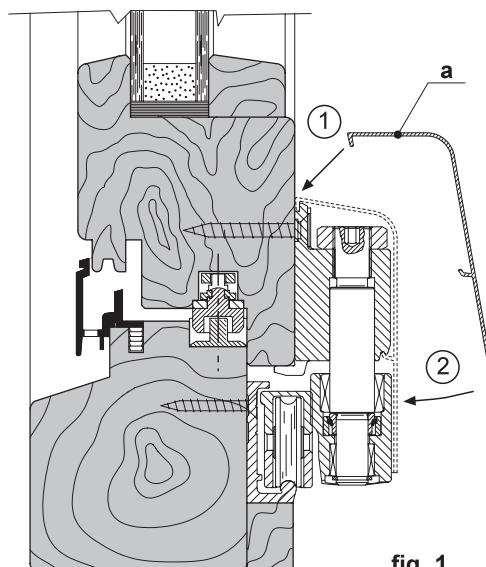


fig. 1

Carriage support cover (fig. 2)

- 1) Apply the plastic side covers (b) inserting them in the special slits from the top.
- 2) Push the covers downward until they are aligned with the cover trim.

Top guide cover (fig. 2)

- 1) Insert the plastic cover trim (c) in the top guide until it covers its entire length.
- 2) With scissors, trim off the excess.
- 3) Apply the end caps (d).

Stay arm cover (fig. 2-3)

Aluminium profile (e) to be cut on total external sash length minus 34 mm.
Position the profile on rebate as indicated in the drawing (fig. 3) and make it snap into the proper seat. Install the right and the left side caps (f).

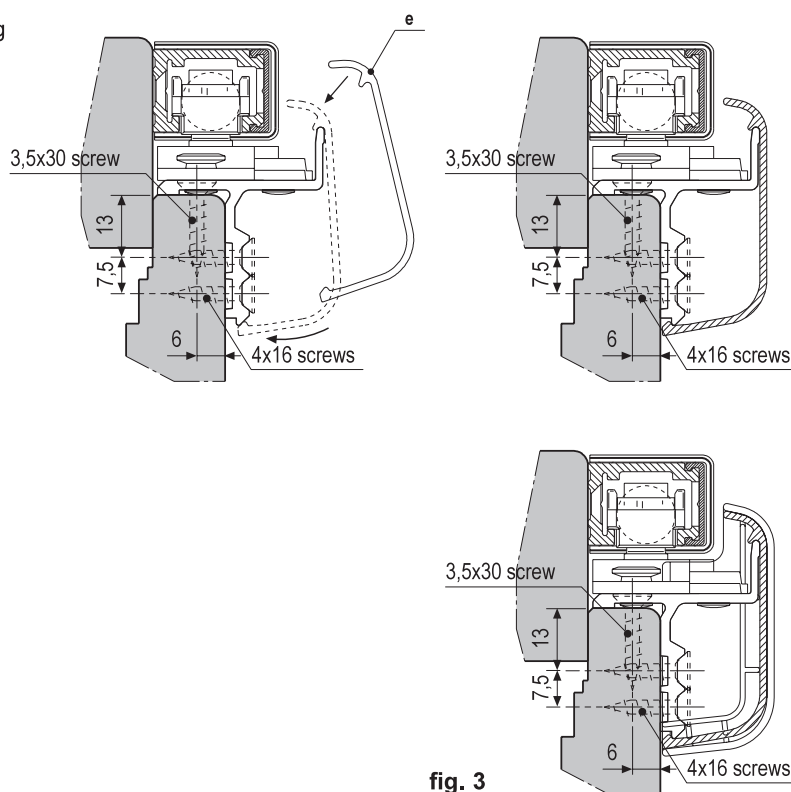
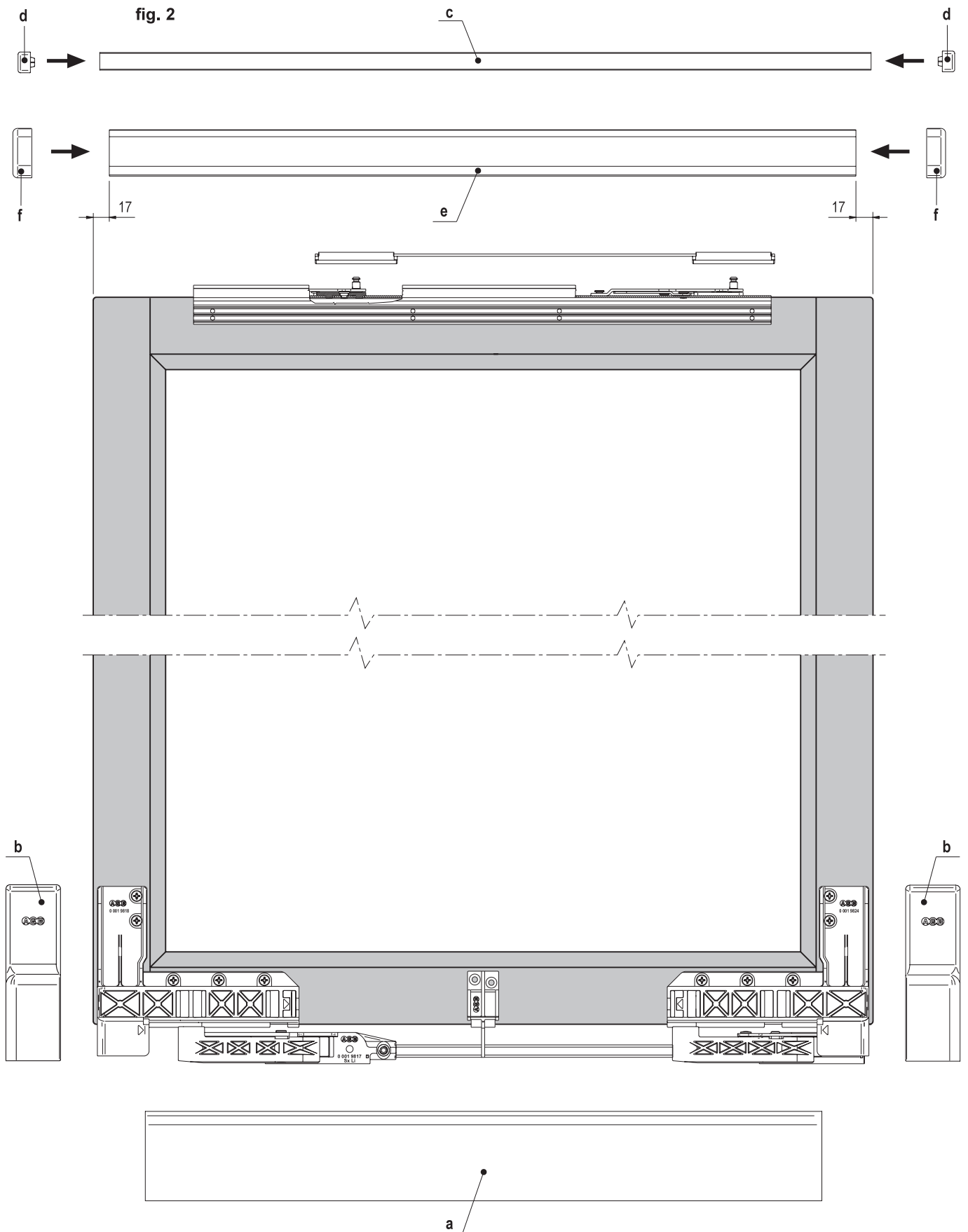


fig. 3

Cover installation



Routine maintenance

For an excellent system performance, we recommend that you carry out the following operations periodically:

Every two weeks

- 1) Brush the bottom rail to remove any accumulated debris that may obstruct wheel movements.
- 2) Vacuum the dust accumulated inside the tracks.

During assembly, and then annually

You need to lubricate with oil or grease:

- Locking cams and locking cam strikers
- Release block and tilt strikers
- Bottom carriage articulations and pins

Every two or three years

Make sure that:

- 1) The dowels of the release lock and of the top and bottom bumpers are tight to prevent the derailment of the sliding sash.
- 2) The hardware, especially the "load bearing" accessories, do not show any evident sign of wear that could compromise the system performances.

Troubleshooting

PROBLEM	CAUSE	SOLUTION
The sliding sash hits and does not hook	Handle in release position	Turn the handle in horizontal position
	Release block improperly positioned	Adjust position of release block
	Connecting rod loose or badly adjusted	Adjust and fasten the connecting rod: - Remove the carriage cover - Open the sash - Tighten the rear carriage dowel and loosen the front carriage - Close the sash - Tighten the front carriage dowel
	High/low carriages	Adjust carriage height
The sliding sash hooks onto the front carriage only	Connecting rod badly adjusted	Adjust carriage height
"Stiff" handle, sash scrapes when closing	Misaligned carriages High/low carriages	Adjust carriage height
The sash closes badly or with insufficient pressure	Badly-adjusted locking cams	Adjust the locking cams
Sash does not slide smoothly	Damaged or dirty bottom rail	Clean and/or replace the bottom rail



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